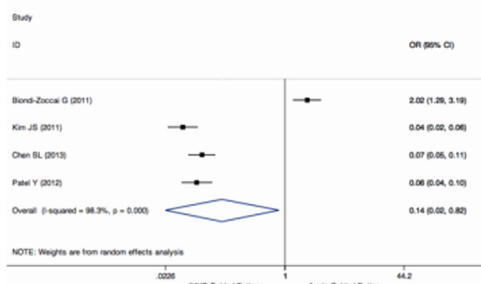


Death + Stent Thrombosis + Myocardial Infarction



Conclusions: IVUS-guided bifurcation PCI may improve long term outcomes compared to angiography-guided bifurcation PCI. Additional data are needed to confirm the findings of this meta-analysis.

TCT-834

No differences in clinical efficacy and safety between biodegradable polymer and durable polymer drug-eluting stents for percutaneous coronary intervention: insights from a meta-analysis of randomized controlled trials

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Background: With the recent availability of randomized evidence in the era of biocompatible drug-eluting stents (DES), we systematically reviewed the latest data on the efficacy and safety of biodegradable polymer DES versus durable polymer DES for percutaneous coronary intervention (PCI).

Methods: MEDLINE, EMBASE and the Cochrane database were searched in May 2013 for eligible randomized controlled trials (RCTs). Primary outcomes were mortality, myocardial infarction (MI), stent thrombosis, target lesion revascularization (TLR) and target vessel revascularization (TVR). Secondary outcomes were late lumen loss (LLL), minimal lumen diameter (MLD), diameter stenosis and binary restenosis.

Results: We included 20 studies (n=20,021). A total of 11,045 (55.2%) participants were randomized to biodegradable polymer DES and 8,976 (44.8%) to durable polymer DES. No significant differences were observed in the analyses of all-cause mortality (odds ratio (OR) 0.95, 95% confidence interval (CI) 0.81 to 1.12, p=0.54), cardiac mortality (OR 0.95, 95% CI 0.77 to 1.17, p=0.62), MI (OR 1.08, 95% CI 0.91 to 1.27, p=0.37), stent thrombosis (OR 0.89, 95% CI 0.70 to 1.14, p=0.36), TLR (OR 0.88, 95% CI 0.71 to 1.10, p=0.26) or TVR (OR 1.05, 95% CI 0.85 to 1.29, p=0.65). Biodegradable polymer DES were associated with significant improvement in most angiographic outcomes (in-stent LLL: mean difference (MD) -0.05, 95% CI -0.09 to -0.02, p=0.004; in-segment LLL: MD -0.04, 95% CI -0.06 to -0.01, p=0.004; in-stent MLD: MD 0.08, 95% CI 0.03 to 0.14, p=0.002; in-segment MLD: MD 0.06, 95% CI 0.02 to 0.10, p=0.001; in-stent diameter stenosis: MD -2.27, 95% CI -4.02 to -0.52, p=0.01; in-segment diameter stenosis: MD -1.97, 95% CI -3.14 to -0.81, p=0.0009) except for binary restenosis (in-stent: OR 0.68, 95% CI 0.25 to 1.83, p=0.44; in-segment: OR 0.83, 95% CI 0.50 to 1.39, p=0.49).

Conclusions: Biodegradable polymer DES significantly improved angiographic outcomes, with similar clinical safety and efficacy profiles as those by durable polymer DES. Long-term follow-up data from large-scale randomized studies are warranted to further establish the effects of biodegradable polymer DES for PCI.

TCT-835

Sodium bicarbonate versus normal saline hydration for mortality: a meta-analysis of randomized controlled trials

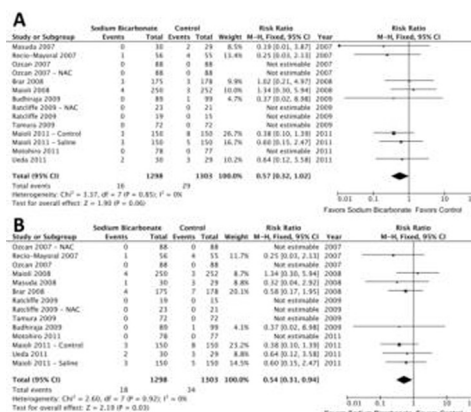
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Background: Perioperative infusion of sodium bicarbonate (NaHCO₃) has been shown to reduce the risk of contrast-induced nephropathy (CIN). However, it is currently not known the effect NaHCO₃ may have on short and long-term mortality. The objective of this research was to conduct a meta-analysis to determine whether NaHCO₃ is associated with a reduction in mortality.

Methods: We searched MEDLINE, EMBASE, and references for published randomized controlled trials (RCTs) comparing hydration with NaHCO₃ versus normal saline (NS) for mortality at 30-days and 1-year following coronary angiography (index procedure). Point estimates were extracted as relative risks (RRs) and 95% confidence intervals (CIs) and combined for meta-analysis using a fixed-effect model.

Results: Eleven RCTs, including 2634 participants (NaHCO₃=1298; NS=1303) met eligibility criteria. Eight contributed data to summary estimates for 30-day (Fig. 1A) and 1-year all-cause mortality (Fig. 1B). At 30-days, a total of 16 and 29 deaths occurred in NaHCO₃ and control arms, respectively (1.2% vs 2.2%; RR, 0.57; 95% CI, 0.32-1.02; p=0.06) compared to a total of 18 and 34 deaths at 1-year (1.4% vs 2.6%; RR, 0.54; 95% CI, 0.31-0.94; p=0.03). There was no observed heterogeneity for either outcome (p=0.85 and p=0.92), nor any evidence of reporting bias.



Conclusions: Sodium bicarbonate has an important clinical impact in reducing mortality following coronary angiography.

TCT-836

The impact of biodegradable versus durable polymer drug-eluting stents on stent thrombosis in patients with coronary artery disease: a meta-analysis of 15 randomized trials

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Background: DES with biodegradable polymers have been developed in an attempt to improve clinical outcomes. However, the impact of biodegradable polymers on clinical events and ST remains controversial.

Methods: We searched Medline, the Cochrane Library and other internet sources, without language or date restrictions for articles comparing clinical outcomes between biodegradable polymer DES and durable polymer DES. Safety endpoints were ST (definite, definite/probable), mortality, and myocardial infarction (MI). Efficacy endpoints were major adverse cardiac event (MACE) and target lesion revascularization (TLR).

Results: We identified 15 randomized controlled trials (n=17,068) with a weighted mean follow-up of 20.6 months. Compared with durable polymer DES, there was a trend towards low incidence of definite/probable ST in biodegradable polymer DES group, but this difference was not statistically significant (relative risk [RR]: 0.83; 95% confidence interval [CI]: 0.62-1.11; p=0.22). Biodegradable polymer DES had similar rates of definite ST (RR: 0.94; 95% CI: 0.66-1.33; p=0.72), mortality (RR: 0.94; 95% CI: 0.82-1.09; p=0.43), MI (RR: 1.08; 95% CI: 0.92-1.26; p=0.35), MACE (RR: 0.99; 95% CI: 0.91-1.09; p=0.85), and TLR (RR: 0.94; 95% CI: 0.83-1.06; p=0.30) compared with durable polymer DES. Based on the stratified analysis of included trials, the treatment effect on definite ST was opposite by different follow-up times: ≤1 year favoring durable polymer DES, >1 year favoring biodegradable polymer DES.

Conclusions: Biodegradable polymer DES have similar safety and efficacy for treating patients with coronary artery disease compared with durable polymer DES. Further data with longer term follow-up are warranted to confirm the potential benefits of biodegradable polymer DES.